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Success Story

APPLIQUÉ PROTECTIVE COATING TECHNOLOGY EXTENDS LIFE OF STORED F-16 HORIZONTAL STABILIZERS



A 3M Company protective coating, called Appliqué, shields the F-16's composite horizontal stabilizer from ultraviolet light and other forms of damage such as wind and sand erosion. Eliminating the requirement to replace stabilizers due to environmental damage could save the Air Force several hundreds of thousands of dollars. The Navy is also considering the coating to protect the F-18 fighter and other military aircraft stored at the Aerospace Maintenance and Regeneration Center (AMARC).



Air Force Research Laboratory
Wright-Patterson AFB OH

Materials and Manufacturing
Technology Transfer

Accomplishment

The Materials and Manufacturing Directorate, in conjunction with the 3M Company, identified and transferred a specially formulated, adhesive film to protect composite horizontal stabilizers on F-16 fighter aircraft stored at AMARC. Funded by the Environmental Security Technology Certification program, this transfer of commercial technology to the Air Force effectively demonstrates how the public and private sectors work together to support the nation.

Background

AMARC is a joint military service organization that stores, regenerates, and disposes of aircraft and related aerospace equipment. Located at Davis-Monthan AFB, Arizona, the AMARC F-16 fleet allows military units throughout the world to withdraw parts and aircraft when needed.

Situated near Tucson, Arizona, the climate around Davis-Monthan AFB is dry with low humidity and alkaline soil. These conditions allow AMARC to store aircraft for an indefinite period of time with minimum deterioration and corrosion. In addition, the soil is hard, which makes parking the aircraft relatively easy, even without concrete or steel parking ramps.

Despite the advantages offered by a dry, desert environment, AMARC workers must adequately protect composite aircraft components, such as the F-16 horizontal stabilizer, from ultraviolet light as well as sand and wind erosion. Working with the 3M Company, engineers at the Coatings Technology Integration Office at Wright-Patterson AFB, Ohio, identified and helped transition the specially tailored, protective, adhesive film called Appliqué into the AMARC F-16 program.

Appliqué film now protects most F-16 horizontal stabilizers at AMARC, eliminating the cost of replacing components and the need for additional protective coatings, and effectively demonstrating the viability of a new applied technology. The F-16, considered by many to be the most agile fighter aircraft in military service, forms the backbone of the Air Force fighter fleet. The Air Force, the Department of Defense, and the taxpayer will benefit from the long-term preservation of the F-16s stored at AMARC.

Additional information

To receive more information about this or other activities in the Air Force Research Laboratory, contact TECH CONNECT, AFRL/XPTT, (800) 203-6451 and you will be directed to the appropriate laboratory expert. (01-ML-15)